図1

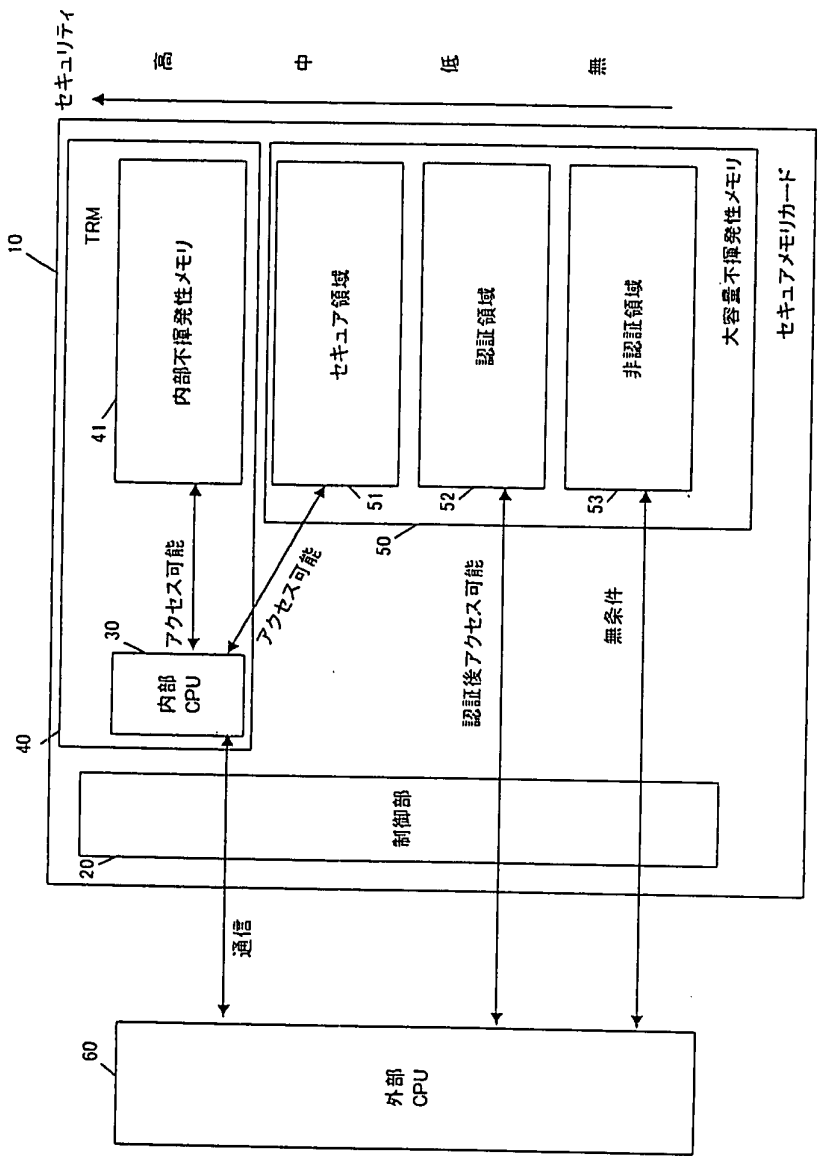

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FIG. 1

10 SECURE MEMORY CARD

20 CONTROL SECTION

30 INTERNAL CPU

41 INTERNAL NONVOLATILE MEMORY

50 LARGE-CAPACITY NONVOLATILE MEMORY

51 SECURE AREA

52 AUTHENTICATION AREA

53 NON-AUTHENTICATION AREA

A. COMMUNICATIONS

B. ACCESSABLE

C. ACCESSABLE AFTER AUTHENTICATION

D. UNCONDITIONALLY

E.

SECURITY

HIGH

MEDIUM

LOW

NONE

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図2

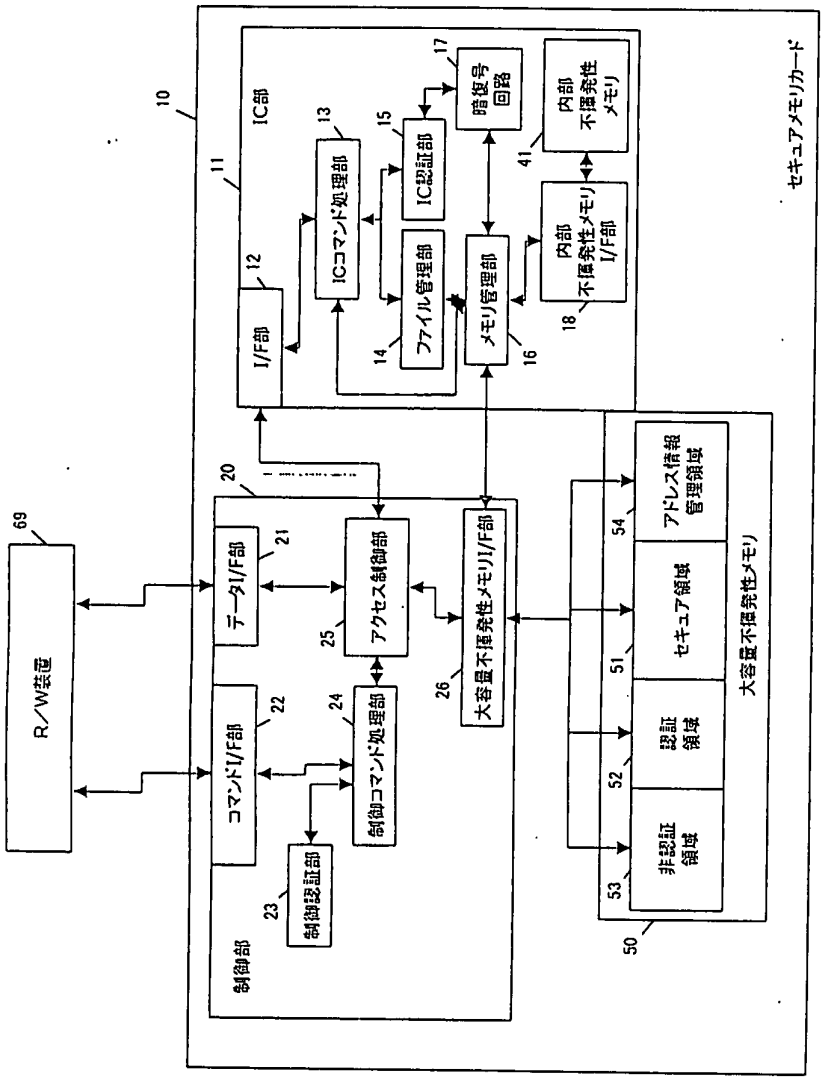

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FIG. 2

10 SECURE MEMORY CARD

11 IC SECTION

12 I/F SECTION

13 IC COMMAND PROCESSING SECTION

14 FILE MANAGEMENT SECTION

15 IC AUTHENTICATION SECTION

16 MEMORY MANAGEMENT SECTION

17 ENCRYPTION AND DECRYPTION CIRCUIT

18 INTERNAL NONVOLATILE MEMORY I/F SECTION

41 INTERNAL NONVOLATILE MEMORY

20 CONTROL SECTION

21 DATA I/F SECTION

22 COMMAND I/F SECTION

23 CONTROL AUTHENTICATION SECTION

24 CONTROL COMMAND PROCESSING SECTION

25 ACCESS CONTROL SECTION

26 LARGE-CAPACITY NONVOLATILE MEMORY I/F SECTION

50 LARGE-CAPACITY NONVOLATILE MEMORY

51 SECURE AREA

52 AUTHENTICATION AREA

53 NON-AUTHENTICATION AREA

54 ADDRESS INFORMATION MANAGEMENT AREA

69 R/W Unit

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図3

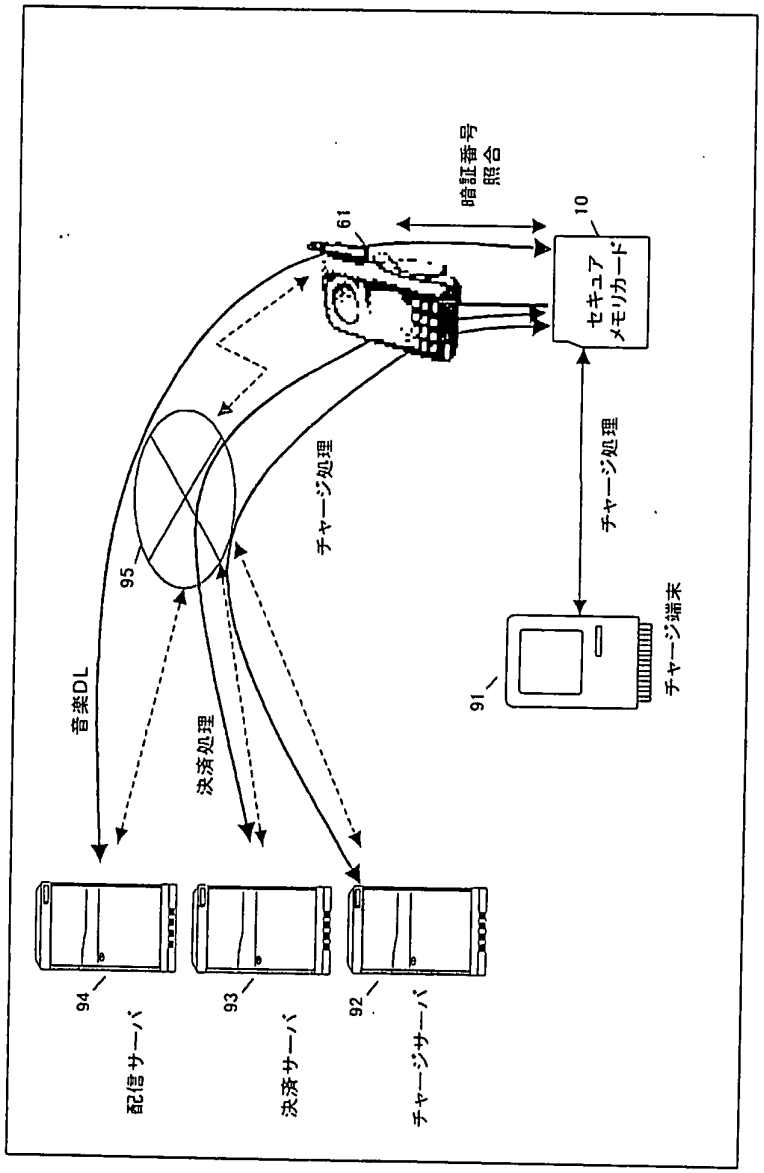

FIG. 3

10 SECURE MEMORY CARD

91 CHARGE TERMINAL

92 CHARGE SERVER

93 PAYMENT SERVER

94 DELIVERY SERVER

A. MUSIC DL

B. PAYMENT PROCESSING

C. CHARGE PROCESSING

D. PERSONAL IDENTIFICATION NUMBER CHECK

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FIG. 4

10 SECURE MEMORY CARD

64 LIQUID CRYSTAL DISPLAY SECTION

65 WIRELESS COMMUNICATION SECTION

66 OPERATION BUTTON

67 CARD I/F SECTION

68 AUTHENTICATION CIRCUIT

621 COMMAND GENERATION PROGRAM

622 AUTHENTICATION KEY GROUP

図4

図5

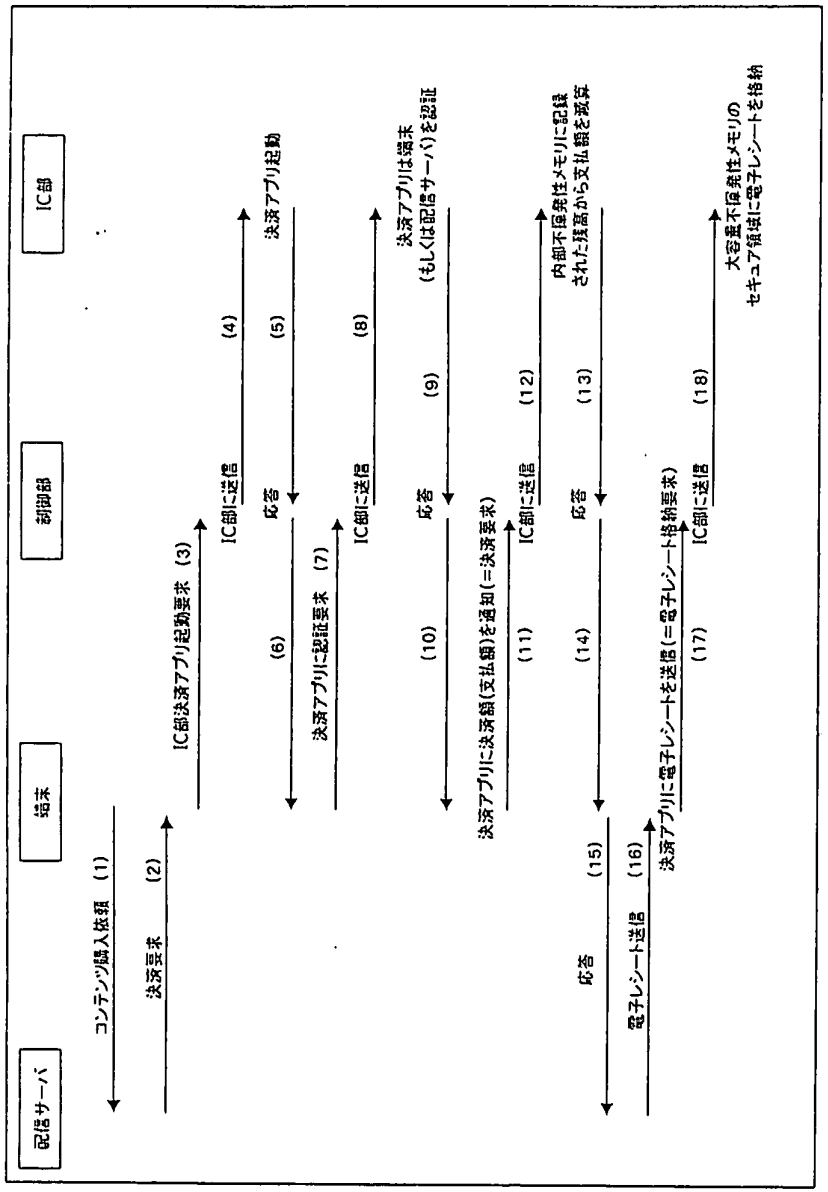

FIG. 5

DELIVERY SERVER TERMINAL CONTROL SECTION IC SECTION

CONTENT PURCHASE REQUEST (1)

PAYMENT REQUEST (2)

IC SECTION PAYMENT APPLICATION START REQUEST (3)

TRANSMIT TO IC SECTION (4)

(5) START PAYMENT APPLICATION

(6) RESPONSE

SEND AUTHENTICATION REQUEST TO PAYMENT APPLICATION (7)

TRANSMIT TO IC SECTION (8)

(9) PAYMENT APPLICATION AUTHENTICATES TERMINAL (OR DELIVERY SERVER)

(10) RESPONSE

SEND PAYMENT AMOUNT (AMOUNT PAYABLE) TO PAYMENT APPLICATION (= PAYMENT REQUEST) (11)

TRANSMIT TO IC SECTION (12)

(13) SUBTRACT AMOUNT PAYABLE FROM BALANCE RECORDED IN INTERNAL NONVOLATILE MEMORY

(14) RESPONSE

RESPONSE (15)

TRANSMIT ELECTRONIC RECEIPT (16)

TRANSMIT ELECTRONIC RECEIPT TO PAYMENT APPLICATION (= ELECTRONIC RECEIPT STORAGE REQUEST) (17)

TRANSMIT TO IC SECTION (18)

(18) STORE ELECTRONIC RECEIPT IN SECURE AREA OF LARGE-CAPACITY NONVOLATILE MEMORY

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図6

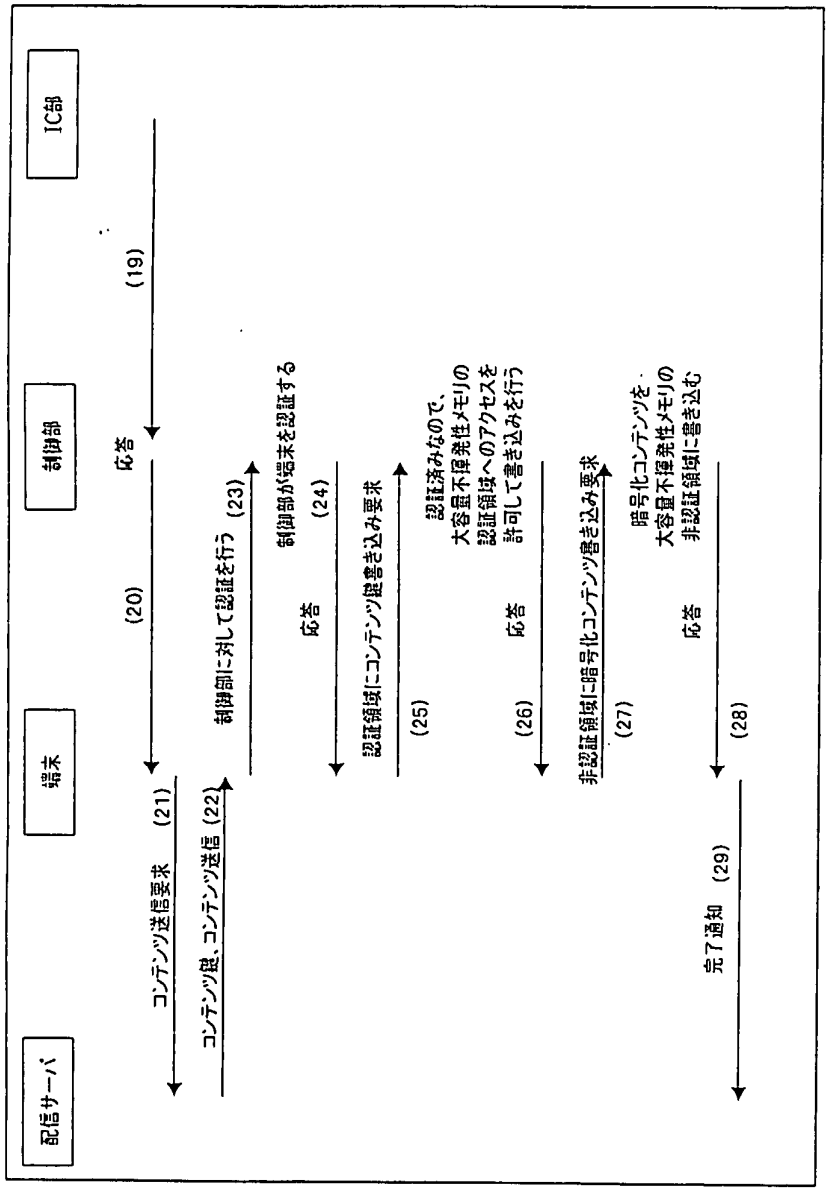

FIG. 6

DELIVERY SERVER TERMINAL CONTROL SECTION IC SECTION

(20) RESPONSE (19)

CONTENT TRANSMISSION REQUEST (21)

TRANSMIT CONTENT KEY AND CONTENT (22)

CONDUCT AUTHENTICATION FOR CONTROL SECTION (23)

CONTROL SECTION AUTHENTICATES TERMINAL

RESPONSE (24)

CONTENT KEY WRITE REQUEST INTO AUTHENTICATION AREA

(25)

SINCE TERMINAL IS ALREADY AUTHENTICATED, PERMIT ACCESS TO AUTHENTICATION AREA OF LARGE-CAPACITY NONVOLATILE MEMORY AND WRITE CONTENT KEY

(26) RESPONSE

ENCRYPTED CONTENT WRITE REQUEST INTO NON-AUTHENTICATION AREA

(27)

WRITE ENCRYPTED CONTENT INTO NON-AUTHENTICATION AREA OF LARGE-CAPACITY NONVOLATILE MEMORY

RESPONSE

(28)

COMPLETION NOTIFICATION (29)

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図7

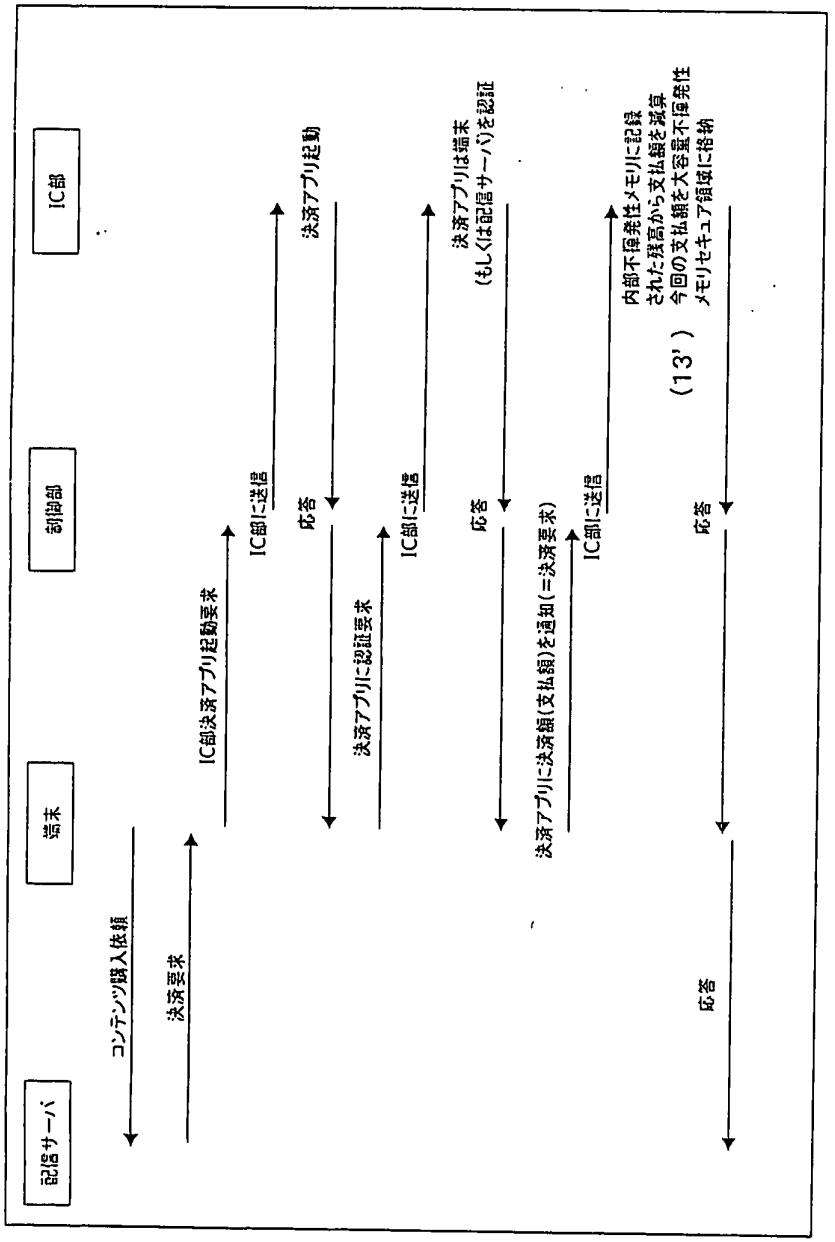

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FIG. 7

DELIVERY SERVER　TERMINAL　CONTROL SECTION　IC SECTION

CONTENT PURCHASE REQUEST

PAYMENT REQUEST

IC SECTION PAYMENT APPLICATION START REQUEST

TRANSMIT TO IC SECTION

RESPONSE　START PAYMENT APPLICATION

SEND AUTHENTICATION REQUEST TO PAYMENT APPLICATION

TRANSMIT TO IC SECTION

PAYMENT APPLICATION AUTHENTICATES TERMINAL

(OR DELIVERY SERVER)

RESPONSE

SEND PAYMENT AMOUNT (AMOUNT PAYABLE) TO PAYMENT APPLICATION (= PAYMENT REQUEST)

TRANSMIT TO IC SECTION

(13') SUBTRACT AMOUNT PAYABLE FROM BALANCE RECORDED IN INTERNAL NONVOLATILE MEMORY

STORE CURRENT AMOUNT PAID IN SECURE AREA OF LARGE-CAPACITY NONVOLATILE MEMORY

RESPONSE　RESPONSE

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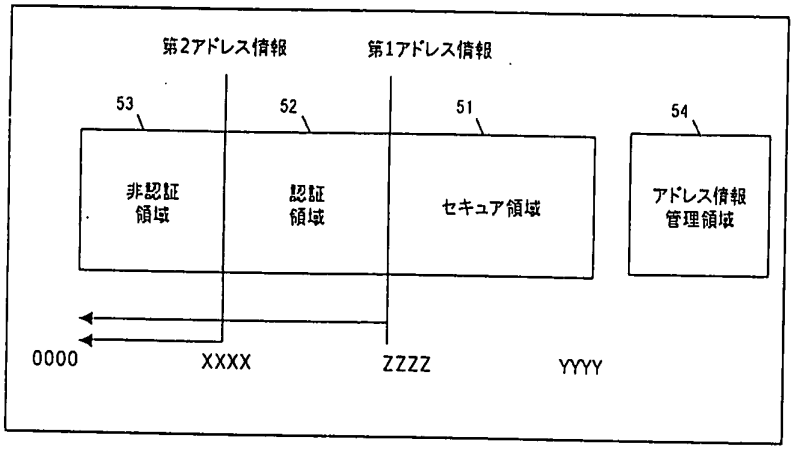

FIG. 8

SECOND ADDRESS INFORMATION FIRST ADDRESS INFORMATION

53 NON-AUTHENTICATION AREA

52 AUTHENTICATION AREA

51 SECURE AREA

54 ADDRESS INFORMATION MANAGEMENT AREA

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FIG. 9

NON-AUTHENTICATION AREA AUTHENTICATION AREA SECURE AREA

LOGICAL BLOCK NO. PHYSICAL BLOCK NO. LOGICAL BLOCK NO.

EQUIVALENT EQUIVALENT EQUIVALENT

FIG. 10

SECOND ADDRESS INFORMATION　FIRST ADDRESS INFORMATION

51 SECURE AREA

53 NON-AUTHENTICATION AREA

52 AUTHENTICATION AREA

54 ADDRESS INFORMATION MANAGEMENT AREA

REAL ADDRESSES

TERMINAL ASSUMED ADDRESSES

図10

FIG. 11

SECOND ADDRESS INFORMATION　FIRST ADDRESS INFORMATION

51 SECURE AREA

53 NON-AUTHENTICATION AREA

52 AUTHENTICATION AREA

54 ADDRESS INFORMATION MANAGEMENT AREA

REAL ADDRESSES

TERMINAL ASSUMED ADDRESSES

図11

FIG. 12

SECURE AREA　NON-AUTHENTICATION AREA　AUTHENTICATION AREA

LOGICAL BLOCK NO.　PHYSICAL BLOCK NO.　LOGICAL BLOCK NO.

EQUIVALENT　EQUIVALENT　EQUIVALENT

図12